

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re Application of

NORTHROP et al.

Appln. No. 08/482,933

Filed: June 7, 1995

FOR: MICROFABRICATED REACTOR



Group Art Unit: 1631

Examiner: A. Marschel

DECLARATION UNDER 37 CFR § 1.131

Hon. Commissioner for Patents
Washington, D.C. 20231

Sir:

I, Richard M. White, declare and state as follows:

1. I am a joint inventor with Dr. M. Allen Northrup ("Dr. Northrup") of the invention disclosed and claimed in subject Appln. No. 08/482,933.

2. Prior to May 1, 1992, we completed the conception of the invention in this country as shown by the following:

- Prior to May 1, 1992, we prepared and signed disclosures for an invention identified by case number B92-011 (Northrup Exhibits A-B and G). Described in the invention disclosures is a device for amplifying a preselected polynucleotide in a sample by manipulating micro- to pico-liter volumes. The device included a reaction chamber, at least one reagent chamber with a channel connecting it to the reaction chamber, a heater for thermal cycling the contents of the reaction chamber, and a temperature controller for the reaction chamber. The reaction chamber has an inlet port for the sample and an exit port. The channel and the reaction chamber have dissimilar dimensions. These features are recited as limitations of independent claims 93, 96,

100, 102 and 106 in the subject Appln. No. 08/482,933. Also compare the features illustrated in the drawings of the invention disclosures to Figure 2 of the subject Appln. No. 08/482,933.

3. Prior to May 1, 1992, we reduced to practice in this country the device recited in independent claims 93, 96, 100, 102 and 106 of the subject Appln. No. 08/482,933 as shown by the following:

- In a notebook kept by Dr. Northrup, an entry (Exhibit N) dated before May 1, 1992 illustrates a portion of a device that embodies features of the device recited in the independent claims. The illustrated portion of the device comprises the following features:

- a port ("syringe" feature in v-groove or trapezoidal cross-section);
 - a reaction chamber ("well" feature with trapezoidal cross-section);
 - channels ("v-groove" features going into and exiting from reaction chamber);
 - a heater ("polyheater/polysilicon" feature); and
 - a temperature controller (not shown) connected to "bond pad" features.

- In a notebook kept by Dr. Northrup, an entry (Exhibit O) dated before May 1, 1992 describes the operation of the device. This device was constructed prior to May 1, 1992 (see photographs on page 34) and then tested for its operability.

- In a notebook kept by Dr. Northrup, an entry (Exhibit P) dated before May 1, 1992 describes the operational testing of the device. The device was successfully operated to amplify a preselected nucleotide (see photographs on page 45).

- In a notebook kept by Dr. Northrup, an entry (Exhibit Q) dated before May 1, 1992 describes the results of further operational tests on the device. In particular, the

tests included homogeneous detection of the reaction products in the reaction chamber using ultraviolet light.

4. I hereby declare that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application and any patent issued thereon.

Date: _____

Richard M. White